RICHMOND

TRADE **Fyrgard** MARK

PRODUCTS

- METAL DOOR FRAMES
- KALAMEIN DOORS, FRAMES & TRIM
- HOLLOW METAL DOORS
- FREIGHT ELEVATOR DOORS
- DUMBWAITER ENCLOSURES
- FIRE DOORS & HARDWARE
- SWING-FOLD & BI-FOLD DOORS
- ELECTRIC DOOR OPERATORS
- COPPER-BRONZE-ALUMINUM & STAINLESS STEEL KALAMEIN PRODUCTS

THE RICHMOND FIREPROOF DOOR COMPANY
RICHMOND, INDIANA

THE COMPANY and Its Facilities

Richmond "Fyrgard" products may be found in active service in America's foremost structures.

Their design, beauty, permanence and long service have fully met the needs of architects, contractors and owners for more than forty-two years.

Our modern plant, ample manufacturing facilities and a "door-minded" organization long experienced in their design and production is the guarantee behind "Fyrgard" products.

Consult your local "Fyrgard" representative or write direct for complete catalogues.

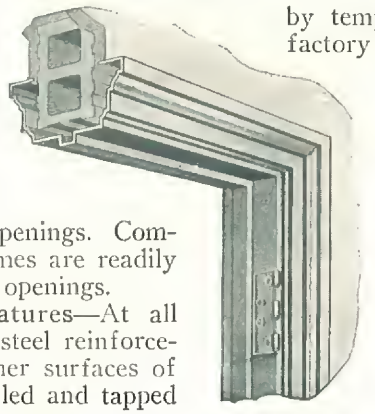
THE RICHMOND FIREPROOF DOOR COMPANY

TELEPHONE, 6777 — RICHMOND, IND. — ESTABLISHED 1891

Branch Offices and Agents with Sales, Erection and Service Facilities in 90 Principal Cities Throughout the United States

List on Back Cover

Metal Frames, Formed and Rolled



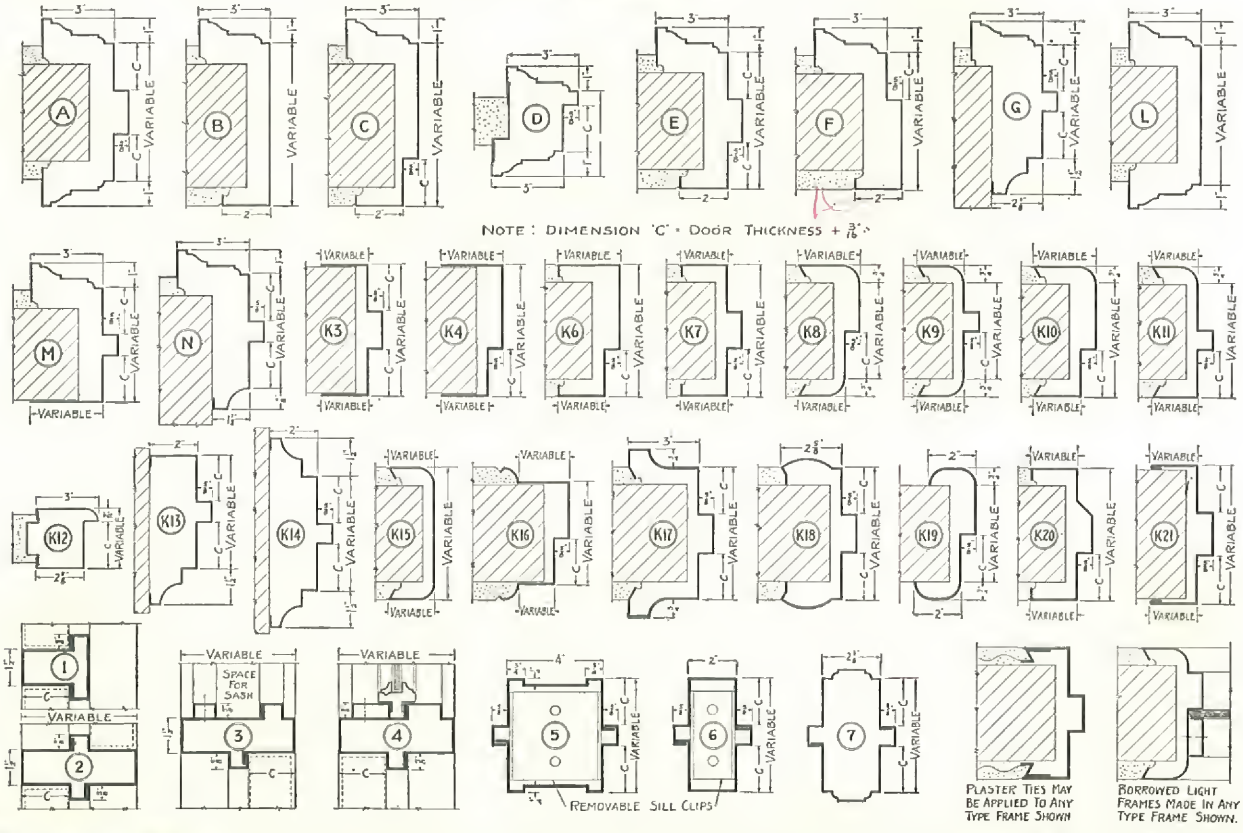
RICHMOND metal frames are distinguished by a new beauty and sharpness of line, made possible through the use of our specially designed machinery.

The standard types shown on this page provide integral buck and trim for all interior door openings. Combinations of Types B and C frames are readily utilized for sliding elevator door openings.

Richmond Construction Features—At all hinge and strike plate locations, steel reinforcements are spot-welded to the inner surfaces of the jambs. Holes accurately drilled and tapped by templates through these reinforcing plates at the factory are provided for the rapid attachment of the hardware.

Plaster guards of 24-gauge galvanized steel, welded inside of the reinforcing plates protect the screwholes from mortar and plaster. This saves time in the attachment of the hardware.

Adjustable anchors, made of 16-gauge stock, are furnished with Richmond steel frames. These anchors can be set wherever desired between courses of a masonry wall as the wall is built. The anchors require no adaptation of plan, yet bond frames solidly to finished wall.



RICHMOND KALAMEIN DOORS, FRAMES AND TRIM . . .

DOORS, frames, and trim furnished to any dimension, and any design illustrated. All types are standard in construction and thickness. Designs other than shown supplied upon request.

Kalamein swing doors may be furnished with or without Underwriters' label in accordance with construction.

Hollow metal mouldings, built into grooves in the stiles and rails or held by concealed clips, and machine pre-formed 24-gauge stretcher leveled metal covering are features of "Fyrgard" Doors.

Kalamein frames covered with tight fitting machine applied 24-gauge metal are smooth, with sharp, true lines. Kalamein frames cannot bear Underwriters' labels. If labeled frames are required, refer to our labeled all-metal frames.

Cores of all Richmond Kalamein doors, frames, casings, and moulds are machined from solid stock up to standard lengths.

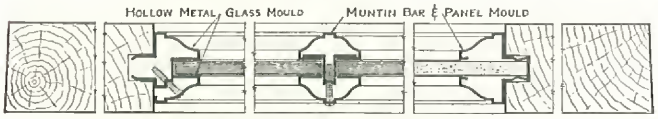
Metal covered plinths of any design furnished upon request.

Standard finish—gray metallic primer. Durable baked enamel in plain color or wood grain applied in our factory when specified.

Specifications for Richmond Non-labeled Kalamein Doors

All metal covered doors shall be of the "Fyrgard" type as manufactured by THE RICHMOND FIREPROOF DOOR COMPANY.

Wood cores shall be of selected non-resinous spruce or white pine, kiln dried by door manufacturer. Stiles shall extend full height of door, and rails shall be tenoned into stiles. Wood cores shall be covered with 24-gauge zinc coated sheet metal tightly drawn so as to lie smooth. All joints between rail and stile metal shall be locked by lapping and nailing to wood cores. Seams then to be soldered and ground smooth.



SECTION THROUGH GLASS LIGHTS & PANEL
NON-LABELED CONSTRUCTION.

Panels shall also be covered with 24-gauge zinc coated sheet metal. Panel sheets shall be glued to ¼-in. sheet rock and held under high pressure until glue is set. Panels shall be set in hollow metal panel moulds in such a manner as to eliminate the use of nails, screws or concealed clips.

Glass shall be set in glass sash set in grooves of rails and stiles. Removable glass stops to be held in place with self-tapping sheet metal screws.

All doors shall be given one shop coat of special gray primer paint for galvanized iron.

Specifications for Richmond Labeled Kalamein Doors

All metal covered doors shall be of the approved Underwriters' "Fyrgard" type as manufactured by THE RICHMOND FIREPROOF DOOR COMPANY.

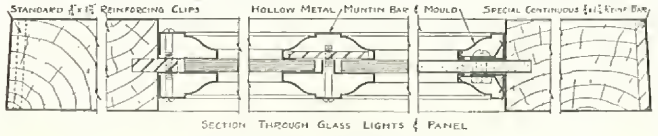
Wood cores shall be of selected non-resinous spruce or white pine, kiln dried by door manufacturer. Stiles shall extend full height of door, and rails shall be tenoned into stiles. Wood cores shall be covered with 24-gauge zinc coated sheet metal tightly drawn so as to lie smooth. All joints between rail and stile metal shall be locked, soldered and ground smooth.

Panels shall be covered with 24-gauge zinc coated sheet metal glued to ¼-in. asbestos and held under high pressure until glue is set. The panel shall extend into grooves in stiles and rails ½ in. and be secured to core covering with ⅜-in. bolts spaced not to exceed 10 in. on center.

Panel moulding shall be hollow metal; mitred, brazed, and attached to door with concealed clips.

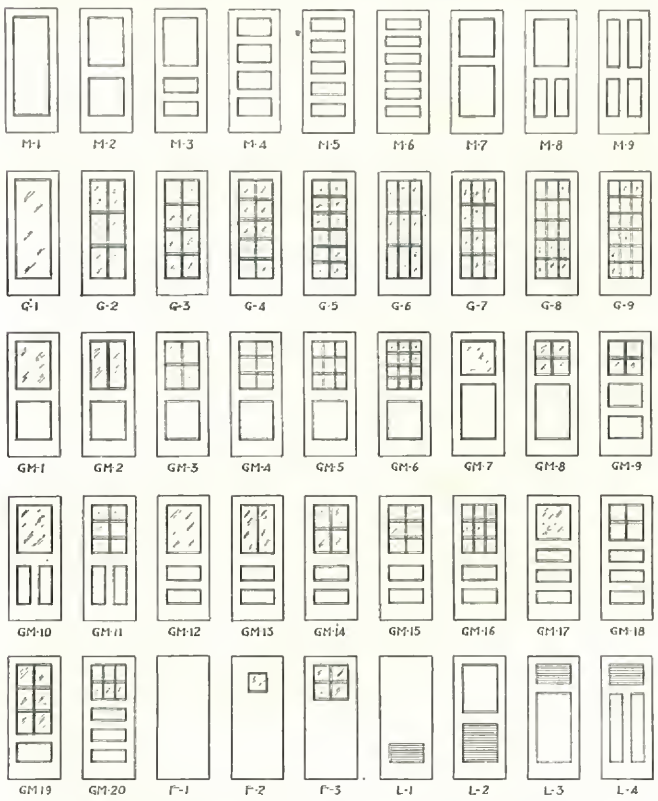
Where glass openings are specified, doors shall have the glass area surrounded by a ¼x⅞-in. steel frame to which hollow metal glass mould and muntin bars are attached. Fixed muntin bar members shall be reinforced with ⅛x1½-in. bar steel for attachment of removable members.

All doors shall be given one shop coat of special gray primer paint for galvanized iron.



SECTION THROUGH GLASS LIGHTS & PANEL
UNDERWRITERS LABEL CONSTRUCTION

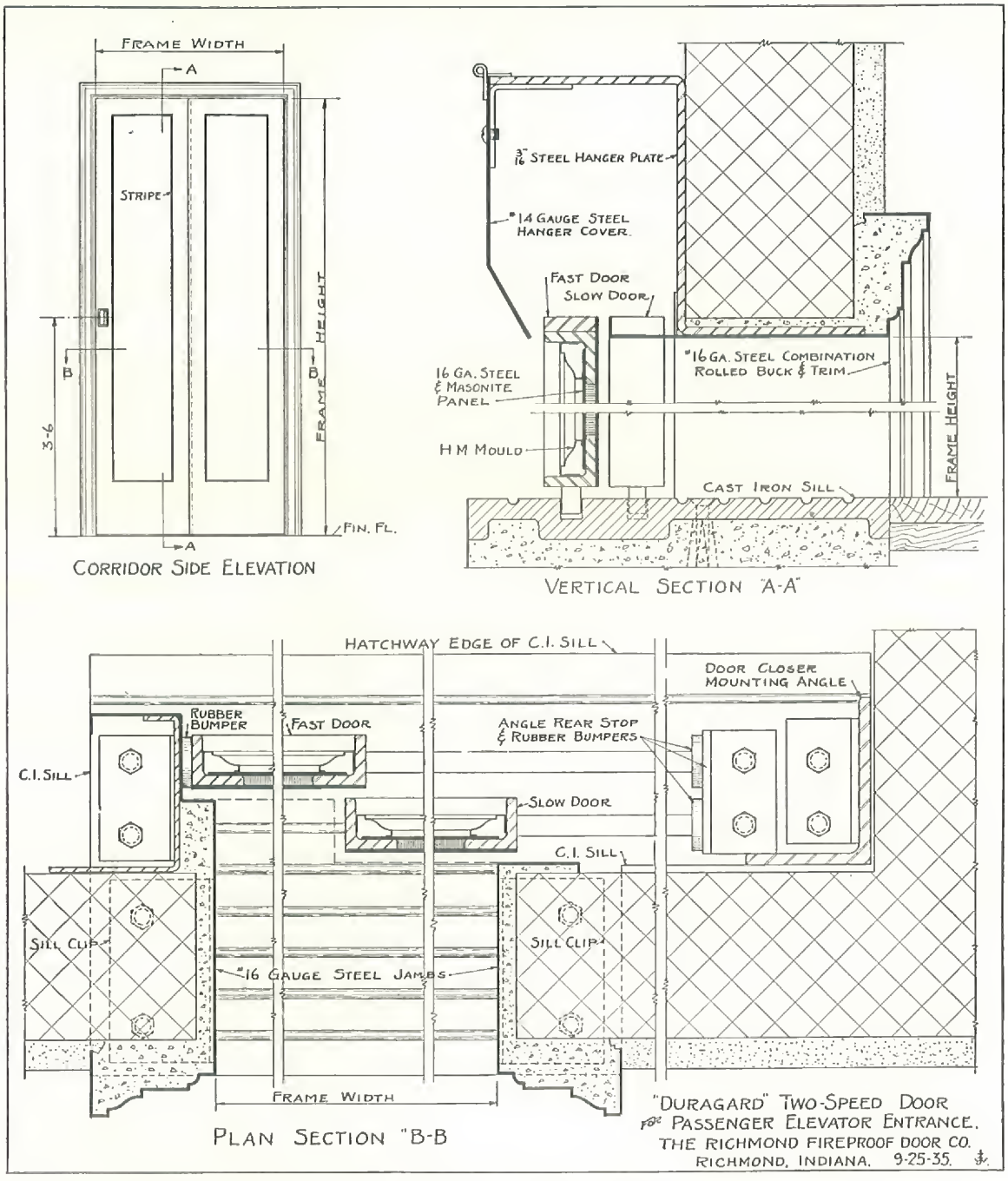
Richmond Standard Types of Kalamein Doors



A Few of our Recent Aluminum, Bronze, Steel and Passenger Elevator Kalamein Installations

Bridgeport Brass Co., New Haven, Conn.
Pumping Station, Blue Plains, D. C.
American Can Co., Tampa, Fla.
General Motors Research Laboratory Bldg., Detroit, Mich.
Montgomery Ward & Co., Missoula, Mont.
Riverton School, Riverton, N. J.
Asylum for Deaf and Dumb, Santa Fe, N. M.
Pullman Co., Long Island City, New York, N. Y.
Village and Community Hall, Cleveland, Ohio
Delaware Bridge Commission, Philadelphia, Pa.
Washington High School, Sioux Falls, S. D.
S. H. Kress Store, Nashville, Tenn.
U. S. Post Office and Courthouse, San Antonio, Tex.
Salsbury Co., Salt Lake City, Utah
Middlebury College, Middlebury, Vt.
Kraft Phoenix Cheese Corp., Green Bay, Wis.

RICHMOND "DURAGARD" PASSENGER ELEVATOR ENTRANCE SLIDING DOOR



The "Duragard" Door was developed especially for passenger elevator entrances, and car riding doors where cars are completely enclosed.

This door is constructed of a heavy angle panel frame and double sheet steel insulated panel weld-assembled. It is very rigid and durable, yet is only $1\frac{5}{16}$ in. thick. (Other thicknesses if specified.)

It may be finished in baked enamel to match the opening frame or car interior. Standard finish is black Duco with gold stripe on corridor side.

"Duragard" Doors are adaptable for single, two, or multiple speed sliding and center-parting units. We are prepared to furnish these doors with hardware, opening frames (see page 2) and sills—a complete unit—and equip them with "DM" Electric Operators (see page 15).

A Vertical Series of hatchway doors with a car door, all electrically operated and interlocked provides a complete and ideal installation, for the finest apartment or office building, that will be trouble-free and give long uninterrupted service.

For further information consult your nearest Richmond Agency or Home Office.

RICHMOND *Counterbalanced* FREIGHT ELEVATOR DOORS

Typical First Floor View in a National Parking Garage
Richmond Doors Illustrated have bronze covered panels

FOR more than thirty years Richmond has been building Counter-balanced and Vertical Telescoping Freight Elevator doors to fit every conceivable condition. These early installations are still giving active satisfactory service.

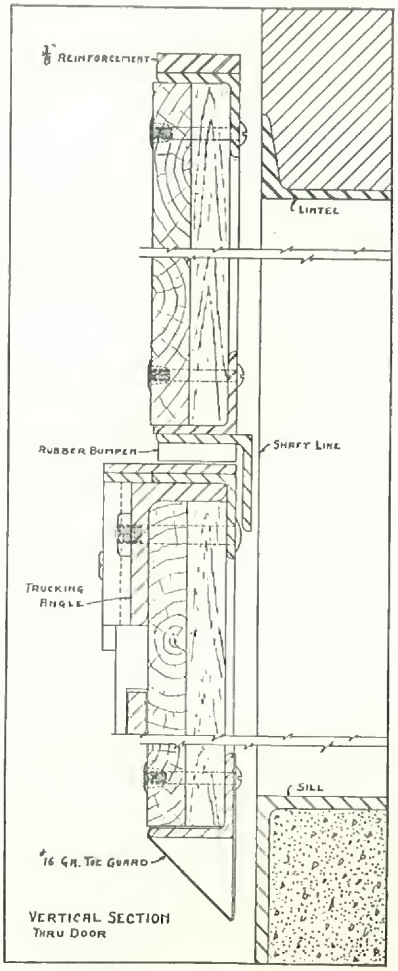
In a comparatively recent installation in the National Parking Garage at Chicago, 283 Richmond doors 14 ft. 6 in. wide by 8 ft. high were required. (See illustration.) These doors weighed approximately 1800 lbs. each in addition to the trucking load sustained, they are power operated, opening or closing in four seconds.

Richmond has to her credit numerous other installations of exceptionally large doors that are giving satisfactory service. Richmond Elevator doors are built for service,—long continuous service that is free from expensive repairs.

GENERAL

Counterbalanced elevator doors, being installed entirely within the hatchway do not occupy floor space, thus maximum clear openings are provided. They are made in two sections and hung so that in opening the lower section slides downward and the other upward. They differ from Vertical Telescoping doors where both sections slide upward, the upper half at one-half the speed of the lower.

Richmond Counterbalanced doors are hung on steel cable chain and ball bearing sheaves and slide in steel angle guides. They may be of various designs or styles as shown on the following pages, may bear the Underwriters' standard or "Oversize" labels, may be manually or electrically operated, and interlocked with the elevator circuit. Doors for openings more than 8 ft. wide by 10 ft. high are "Oversize" and have reinforced trucking sills. See the following pages for details.

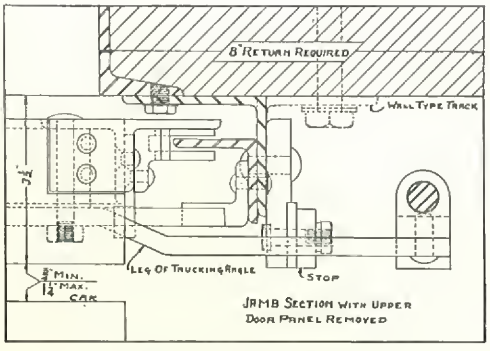


Vertical Section Regular Door

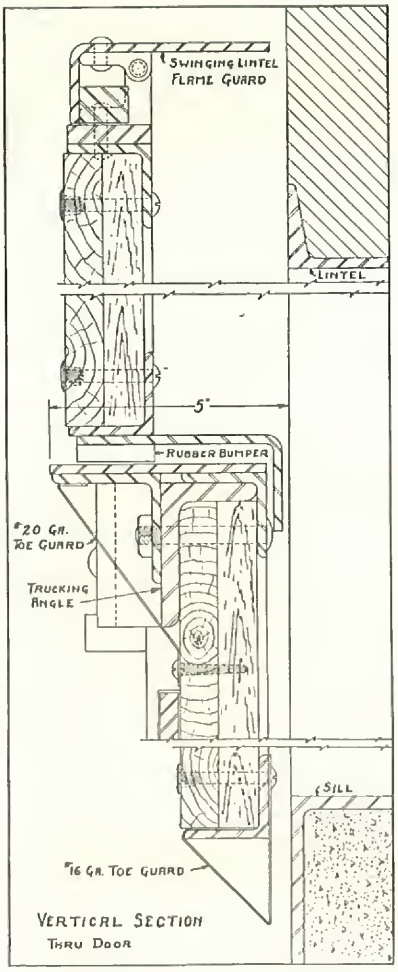
TYPES OF RICHMOND ELEVATOR DOORS

"REGULAR" TYPE DOORS

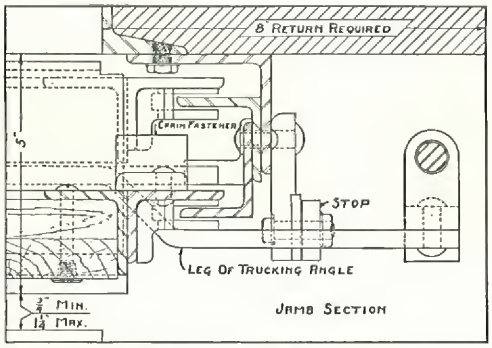
"Regular" Type Doors are required where there is sufficient space in the pit and between the floors. When the openings are substantially the same size the space required between openings equals one-half of the opening height plus 9 in. A clear return of 8 in. at each jamb is required. Minimum clearance car to building sill 4¼ in. Oversize doors 4½ in.



Jamb Section Regular Door



Vertical Section Pass Type Door



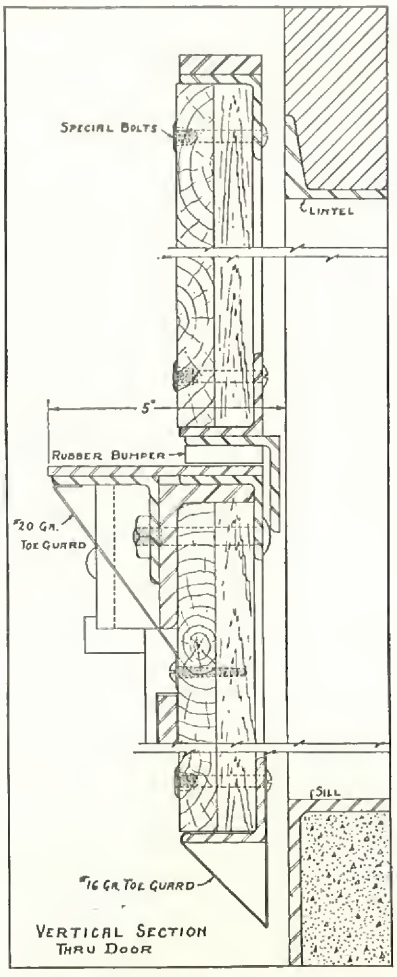
Jamb Section Pass Type Door

"PASS" TYPE DOORS

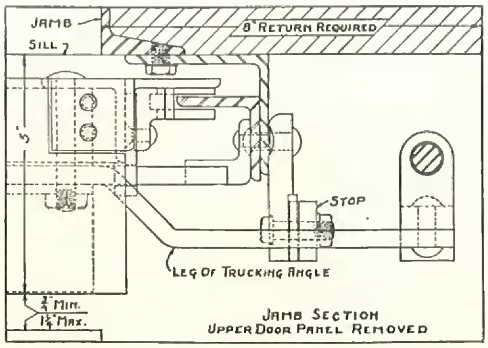
"Pass" Type Doors are required where the space between openings is less than that specified for "Regular" doors (but not less than 12 in.), and where openings of different height are in the same series. The upper door section is set into the shaft to slide by the lower section of the door above. The trucking sill is extended accordingly, a swinging lintel flame guard is provided on the top edge of the upper section, and the guides have double guide angles. Otherwise the construction is similar to that of "Regular" doors. A clear return of 8 in. is required at the jambs, minimum clearance car to building sill 5¾ in. for standard and "Oversize" doors.

"REGULAR TYPE DOORS WITH EXTENDED SILLS"

"Regular Type Doors with Extended Sills" are required at openings when the space between openings is sufficient for "Regular" doors but where "Pass Type" doors occur in the same vertical line or series. The construction is identical with "Regular" doors except for the trucking sill which is similar to that of a "Pass Type" door. Clearances required are the same as for "Regular" doors, except minimum clearance car to building sill is 5¾ in. as for "Pass Type" doors.



Vertical Section Regular Door with Extended Sill



Jamb Section Regular Door with Extended Sill

CONSTRUCTION OF RICHMOND COUNTERBALANCED DOORS

The paneling designs of our doors are divided into the four general styles shown on this page. In all other respects, the construction of all styles is identical. All may be labeled.

When vision panels are not desired, they are designated as C-1, C-2, C-3, and C-4 respectively.

When a door is labeled, the vision panel size is limited to 100 sq. in. exposed glass area. If two vision panels are desired, their combined glass area may not exceed 100 sq. in. Vision panels protected with fusible link drop shutters may be provided and exposed glass area increased to 144 sq. in.

KALAMEIN COUNTERBALANCED DOOR (CV-1)

This style, because of the depressed moulded-in panels, when grained and enameled blends in beautifully with other finishings in corridors or rooms of fine office buildings and apartments. The hatch side may be tin clad, or metal clad similar to CV-2. This style presents the finest appearance possible, in counterbalanced doors. Unless otherwise specified, both sides are covered with 24-gauge galvanized steel. Standard finish—Gray metallic primer.

METAL CLAD COUNTERBALANCED DOOR (CV-2)

Where service as well as good appearince is required this style is suggested. It is more in demand than any of the others. The 2-ply core is covered on both sides with 24-gauge galvanized steel and the seams are locked with cap strips which provide a paneled appearance. If desired the cap strips may be inverted, and the seams soldered and scraped to present a smooth, flush surface. Standard finish—Gray metallic primer.

TIN CLAD COUNTERBALANCED DOOR (CV-3)

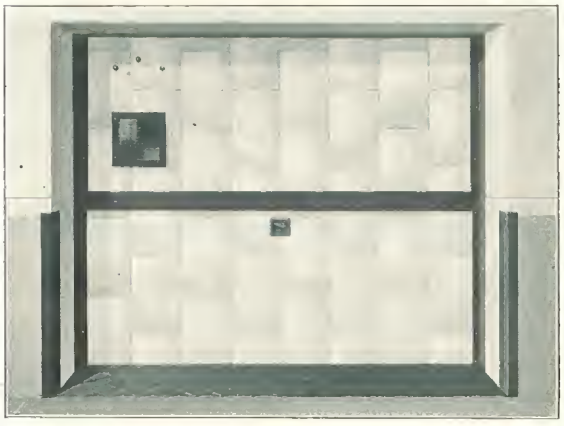
A very serviceable construction suitable for factories and warehouses where appearance is not of importance. The 2-ply core is covered on both sides with standard fire door terne plate. Standard finish—All steel black, panel unpainted.

CORRUGATED IRON COUNTERBALANCED DOOR (CV-4)

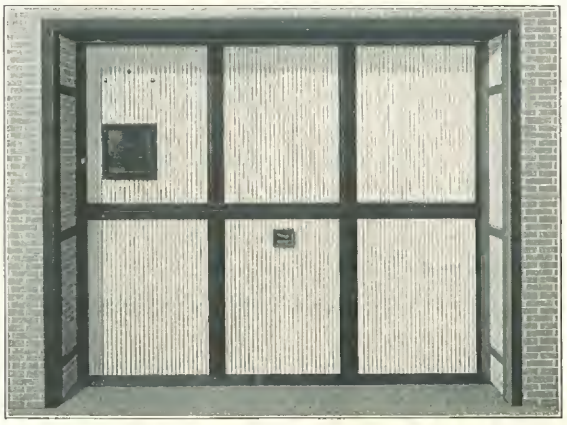
In situations where the doors are subjected to dampness that might cause rapid deterioration of doors with wood cores, corrugated iron doors are recommended. If periodically painted they will last indefinitely. We are equipped to cadmium plate these doors after fabrication where severe conditions warrant the expense. Standard finish—Red oxide primer.

CV-1

CV-2



CV-3



CV-4

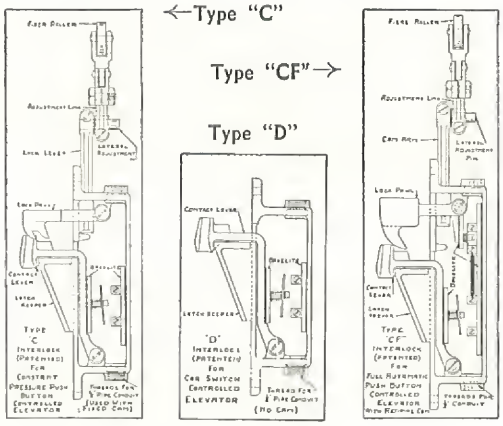
RICHMOND UNDERWRITERS' LABELED "C," "CF" AND "D" INTERLOCKS

Richmond counterbalanced doors equipped with Richmond Underwriters' labeled interlocks provide maximum protection against accident and fire and secure the lowest possible insurance rates. They are designed for the three general types of elevator control, i. e.:

Type "C" for constant pressure double button elevators, Type "CF" for single button automatic elevators and Type "D" for car switch elevators.

Master Interlock

In some door installations, (five or more doors in the same vertical line, or series) it is more economical to substitute a Richmond Master interlock, installed in the penthouse, which is connected by means of an oil tempered steel tape to all of the doors. Any door that is opened will operate the interlock and open the elevator control circuit. This unit is suitable for car switch controlled elevators and when equipped with cover gasket is explosion proof.



RICHMOND ELECTRICALLY OPERATED ELEVATOR DOORS

DM Penthouse (Master) Type Operator

The Richmond Penthouse Master Operator is mounted on penthouse floor and is connected to the series of doors by means of steel operating rods and roller chain, retiring cams and friction grips, etc. Suitable interlocks connected in the elevator control circuit prevent movement of car while a door is open. Control may be push button or automatic.

DM Individual Type Door Operator

Richmond Individual Operators are mounted on the corridor side of the hatch wall above the openings. They are connected to their respective doors by means of arms or sprockets and chains. Direct arm connection is preferable where headroom is available. The sprocket-chain-slide bar arrangement is adaptable to low headroom.

All Richmond D-M Door Operators are Based on the D-M "Harmonic Motion" Principle, Slow Start-Fast Travel-Slow Stop. No Slamming.

STANDARD SPECIFICATIONS FOR "RICHMOND FYRGARD" LABELED COUNTERBALANCED DOORS

1. For all openings to freight elevator shafts, except as otherwise noted, furnish and install "Fyrgard" Counterbalanced doors manufactured by THE RICHMOND FIREPROOF DOOR COMPANY, of Richmond, Indiana.
2. Door paneling design to be Richmond Style—
   (a) Door panels to be covered with 24-gauge galvanized patent leveled steel, laid smooth and free from waves and buckles, upon white pine kiln dried core. Mouldings attached with concealed clips, corners mitred and welded.
   (b) Door panels to be covered with 24-gauge galvanized patent leveled steel, laid smooth and free from waves and buckles, upon white pine kiln dried core, with cap type vertical seams.
   (c) Door panels to be covered with Standard approved Fire Door Terne plate.
   (d) Door panels to be 18-gauge corrugated steel securely riveted to frame structure and reinforced with channel stays.
   (e) Standard 10x10-in. approved vision panels glazed with ¼-in. clear wire glass to be located adjacent to car control.
3. Door trucking sills to sustain a maximum load of —— pounds, to rest upon rigid adjustable stops riveted to door guides.
4. Doors to be equipped with malleable antifriction milled groove guide shoes, to be hung upon ⅝-in. chain rods, and No. 6 cable chain running over 5-in. ball bearing machined malleable sheaves, and to operate in heavy structural angle guide rails, securely attached to shaft wall and opening frames.
5. (a) Doors to be provided with web strap closers for manual operation and equipped with [electro-mechanical interlocks] [Master interlocks] in accordance with car control. Interlocks shall be wired by [Door Contractor] [Elevator Contractor].
   (b) Doors to be equipped with DM Individual electric operators and interlocks arranged for [Push Button] [Automatic] control.
   (c) Doors to be equipped with (a) Penthouse Master Operator(s) and accessories complete arranged for [Push Button] [Automatic] control.
   (d) Doors to be arranged for prompt, easy manual operation in case of power failure.
   (e) Power operated doors shall be completely wired by door contractor.
6. All material shall receive a prime coat of metallic primer at factory.
7. Door contractor to have free uninterrupted use of running elevator during installation of material.
8. Unless otherwise noted, all opening frames, lintels, and sills to be furnished and installed by others.
9. All material to be guaranteed by THE RICHMOND FIREPROOF DOOR COMPANY against defective material and workmanship for a period of two years from date of installation.

RICHMOND DOOR FEATURES

First Quality material, accurately manufactured. Superior workmanship. Long satisfactory service. Underwriters' and Factory Mutuals Label Service.

RICHMOND COUNTERBALANCED DUMBWAITER DOORS

Aluminum—Kalamein—Stainless Steel—Steel Plate

GENERAL

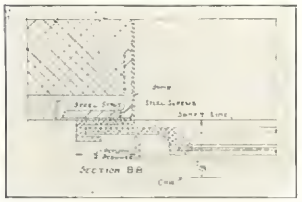
All Richmond Counterbalanced Dumbwaiter Doors are complete units ready to set in place and walled in (unless otherwise specified). Each unit consists of the door panels (with vision panel if specified), the, and finished opening frame (with or without shelf) and steel struts, and are manufactured in any of the following materials. Suitable interlocks furnished when specified.

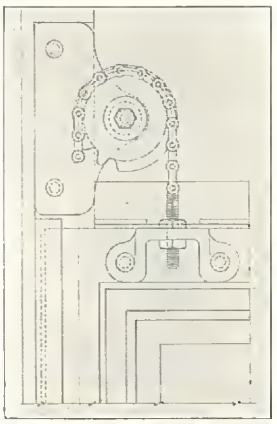
ALUMINUM DOORS composed of extruded guides and panel frame members with 14-gauge sheet panels and opening finished frames, mounted upon steel angle struts. They are very light, quiet in operation, and of pleasing appearance.

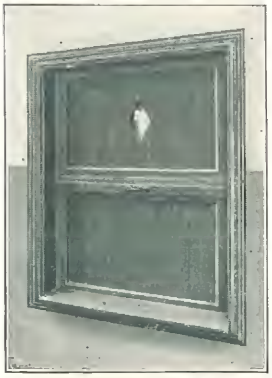
KALAMEIN DOORS with pressed or rolled steel opening frames are very pleasing in appearance (especially when finished in wood grain), are quiet in operation, and durable. Panels may be standard kalamein or thin "DWARF DOOR" construction.

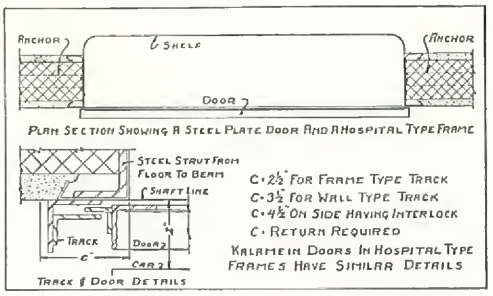
STAINLESS STEEL DOORS are very durable and pleasing in appearance. Manufactured in kalamein, or plate and angle similar to steel plate door construction. Used extensively where surrounding finish is stainless steel.

STEEL PLATE DOORS with pressed or rolled steel opening frames are durable, light, and suitable for situations where fine appearance is not so important. They are the most popular type, and are low in cost.









SPECIFICATIONS

1. For all openings to dumb-waiter shafts, except as otherwise noted, furnish (and install) "Fyrgard" (Aluminum) (Kalamein-"Standard" or "Dwarf Door") (Stainless Steel) (Steel Plate). COUNTERBALANCED DUMBWAITER DOORS, manufactured by The Richmond Fireproof Door Company of Richmond, Indiana.

2. Doors to hang upon ball bearing (sprockets) (sheaves) with suitable flexible chain and to operate in substantial guides.

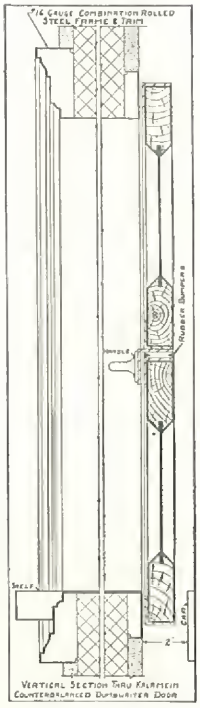
3. Opening frames to be (rolled) (pressed) metal with (without) shelf attached, mounted upon structural steel struts extending from floor to beam above.

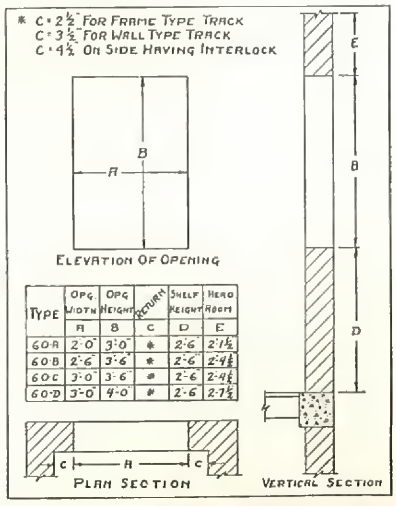
4. Doors to have (circular) (square) (diamond) vision panels glazed with ¼-in. clear wire glass.

5. Doors to be equipped with suitable interlocks to prevent operation of car until all doors are closed.

6. Doors to be finished in (natural or brushed aluminum) (wood grained per sample) (baked enamel color per sample) (gray metallic prime coat) at factory.

7. Units to be assembled complete ready for installation and guaranteed by the manufacturer against defective material and workmanship for a period of two years.



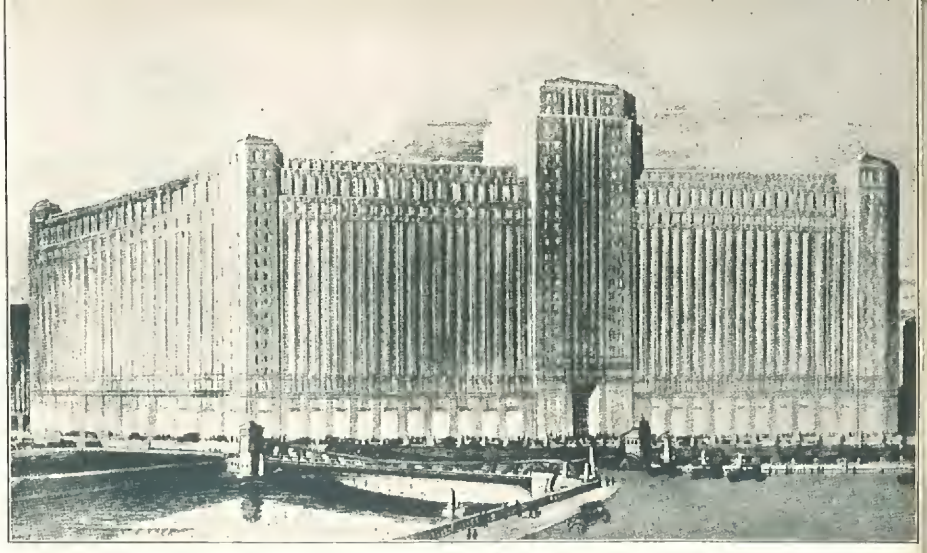


Type	Opg. Width A	Opg. Height B	Return C	Shelf Height D	Head Room E
60A	2'-0"	3'-0"	*	2'-6"	2'-1½"
60B	2'-6"	3'-6"	*	2'-6"	2'-4½"
60C	3'-0"	3'-6"	*	2'-6"	2'-4½"
60-D	3'-0"	4'-0"	*	2'-6"	2'-7½"

10
16

RICHMOND FIRE-RESISTING DOORS

Three Hundred Sixty Two Underwriters' Labeled "Fyrgard" Tinclad doors are installed in the Merchandise Mart Building, dividing it into numerous fire sections and providing adequate protection against the spread of fire from one section to another.



Merchandise Mart, Chicago, Ill.
The World's Largest Building

SPECIFICATIONS

TINCLAD DOORS

Core: Well seasoned white pine, fir, or spruce, tongue and grooved, dressed both sides to $\frac{25}{32}$-in. two or three-ply as indicated by the plans, assembled with standard cut iron nails.

Covering: Standard I. C. 20 pound fire door terne plate laid flat to core. All seams locked. All in accordance with Underwriters' Standards.

Doors to be manufactured by THE RICHMOND FIREPROOF DOOR COMPANY of Richmond, Indiana, and bear the Underwriters' label.

CORRUGATED STEEL DOORS

Door Panel Frame: to be 2½x2x$\frac{3}{16}$-in. angle mitre notched, bent, and welded.

Panel: to be layers of 24-gauge galvanized corrugated steel laid with corrugations of one layer at right angles with those of the other with a $\frac{1}{16}$-in. thick layer of sheet asbestos between. Panels to be riveted to frame. Sliding doors to be provided with track binder angle.

Doors to be manufactured by THE RICHMOND FIREPROOF DOOR COMPANY of Richmond, Indiana, and bear the Underwriters' label.

THE WHY OF OUR SPECIFICATIONS

TIN CLAD DOORS

Wood Cores

From the numerous non-resinous woods approved by the Underwriters, white pine, fir, and spruce have been selected for Richmond Doors because of their light weight and strength. They have less defects, do not warp readily, and are easily worked.

Core Nails

Standard cut wrought iron clinch nails are used to assemble cores. Nails of this type last indefinitely.

Tin Covering

Standard I. C. 20-lb. Fire Door terne plate sheets, joined with lock seams, attached to the core with barbed nails and are so applied that a minimum of air space surrounds the core inside of the metal. The exclusion of oxygen from the core prevents combustion. When the door is exposed to fire the core is slowly charred and presents a high degree of resistance to heat.

Vent Holes

A vent hole is cut in the center sheet on the exposed side of the door to permit the gases from the charring core to escape. If this is not done, the pressure will rupture the metal and allow the fire to rapidly consume the core.

CORRUGATED STEEL DOORS

Panel Frame

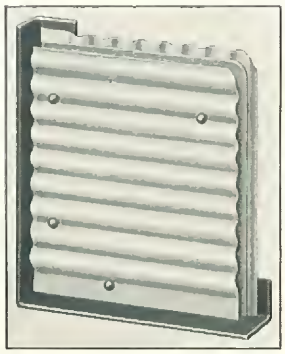
The 2½x2x$\frac{3}{16}$-in. continuous angle frame formed by the mitre notched, bent, and welded process provides a frame of great rigidity and ample strength for the largest door of this type.

Corrugated Steel Panels

Into the angle panel frame is riveted a panel composed of two layers of 24-gauge galvanized corrugated sheet steel separated by a $\frac{1}{16}$-in. thick sheet of asbestos. The corrugations of the layer in contact with the angle frame are vertical and those of the other layer are horizontal.

Two Section Spliced Door

For convenience in shipping or other cause it may be necessary to build doors in two sections to be assembled in the field. When the sections are bolted together and reinforcing bars attached, such doors are accepted as the equivalent of single section doors.



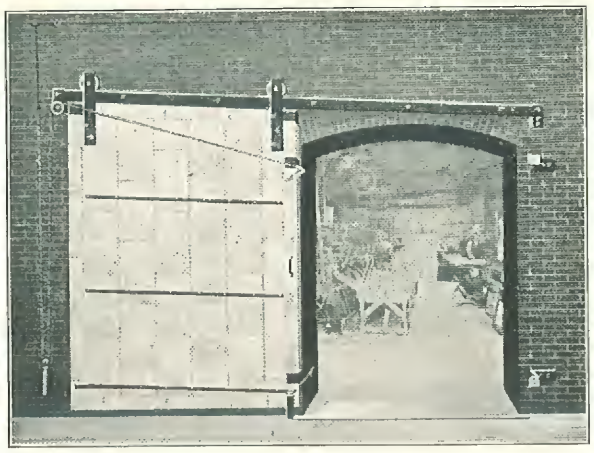
Binders

Track binders and rear binders, integral parts of sliding doors, are supplied irrespective of other hardware.

Richmond "Fyrgard" Tin Clad and Corrugated Steel swinging or sliding Fire Doors when hung upon Richmond approved hardware provide the greatest possible protection against the spread of fire, and are manufactured in strict accordance with the specifications of the Underwriters' Laboratories and Factory Mutuals Laboratories.

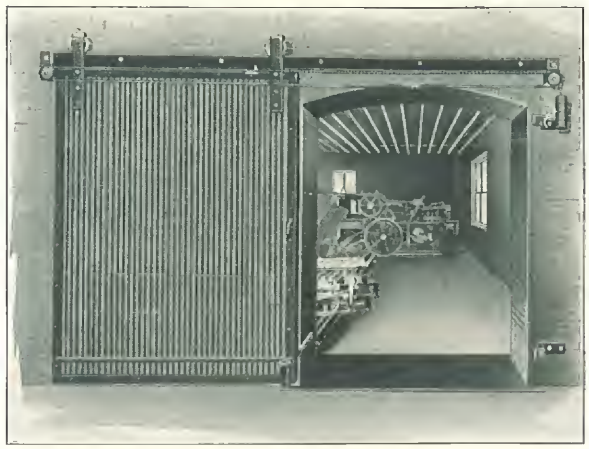
Four popular types of fire doors shown on page 11.

TYPES OF RICHMOND AUTOMATIC SLIDING AND SWINGING FIRE-RETARDING DOORS



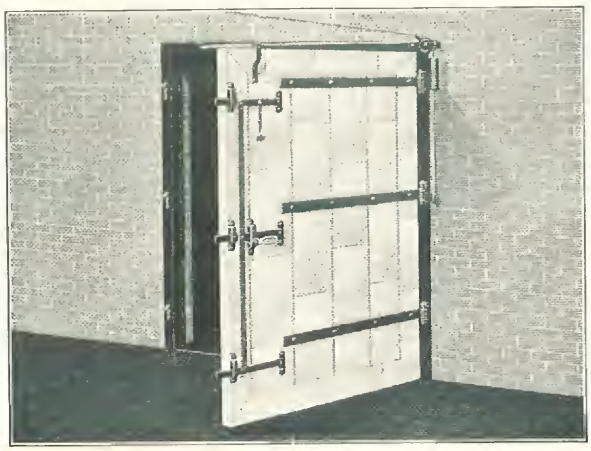
No. 200A Door and Hardware

No. 200A Door—tin clad.
No. 400A Corrugated door similar standard incline track types.
Universally used where ample headroom and returns are available. Simple to install and operate



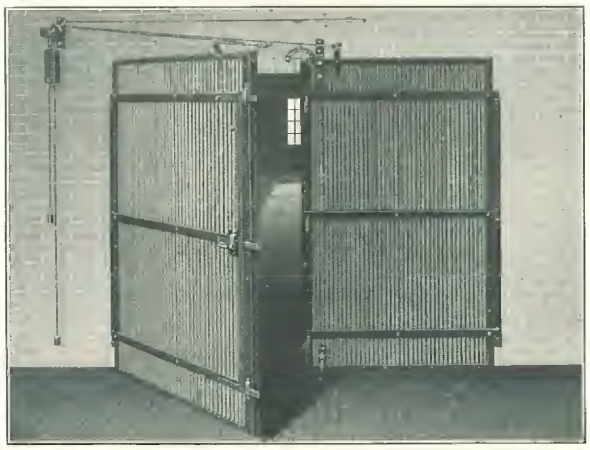
No. 405 Door and Hardware

No. 405 Corrugated door.
No. 205 Tin clad door similar standard level track types.
Used where limited headroom will not permit use of No. 200A or 400A. Numbers 406 and 206 with closing and counterweights furnished where No. 405 and No. 205 are not approved



No. 125 Door and Hardware

No. 125 Tin clad flush door.
This door in a channel frame or lap type is standard and is recommended where conditions will permit. Also furnished in corrugated steel



No. 335 Doors and Hardware

No. 335 Corrugated door.
Suitable for many situations where single swing doors cannot be used. May be lap type or flush in channel frame. Also furnished in tin clad

STANDARD HEADROOM REQUIREMENTS

Sliding Doors Nos. 205, 405—14 in. Nos. 200A and 400A Inclined Track, per following schedule.

Width of opening	Req. head-room	Width of opening	Req. head-room	Width of opening	Req. head-room
2′ 0″	17 3/4″	6′ 0″	23 3/4″	10′ 0″	29 3/4″
2′ 4″	18 1/4″	6′ 4″	24 1/4″	10′ 4″	30 1/4″
2′ 8″	18 3/4″	6′ 8″	24 3/4″	10′ 8″	30 3/4″
3′ 0″	19 1/4″	7′ 0″	25 1/4″	11′ 0″	31 1/4″
3′ 4″	19 3/4″	7′ 4″	25 3/4″	11′ 4″	31 3/4″
3′ 8″	20 1/4″	7′ 8″	26 1/4″	11′ 8″	32 1/4″
4′ 0″	20 3/4″	8′ 0″	26 3/4″	12′ 0″	32 3/4″
4′ 4″	21 1/4″	8′ 4″	27 1/4″	12′ 4″	33 1/4″
4′ 8″	21 3/4″	8′ 8″	27 3/4″	12′ 8″	33 3/4″
5′ 0″	22 1/4″	9′ 0″	28 1/4″	13′ 0″	34 1/4″
5′ 4″	22 3/4″	9′ 4″	28 3/4″	13′ 4″	34 3/4″
5′ 8″	23 1/4″	9′ 8″	29 1/4″	13′ 8″	35 1/4″

Swinging Doors Nos. 125, 135, 325, 335. Lap Type, 8 in. Flush Type, 4 in.

STANDARD RETURNS REQUIRED

Sliding Doors Nos. 200A, 400A, 205, 405.

Return at opening jamb (past which door slides when opened.) Opening width plus 16 in. Return at closing jamb, 14 in.

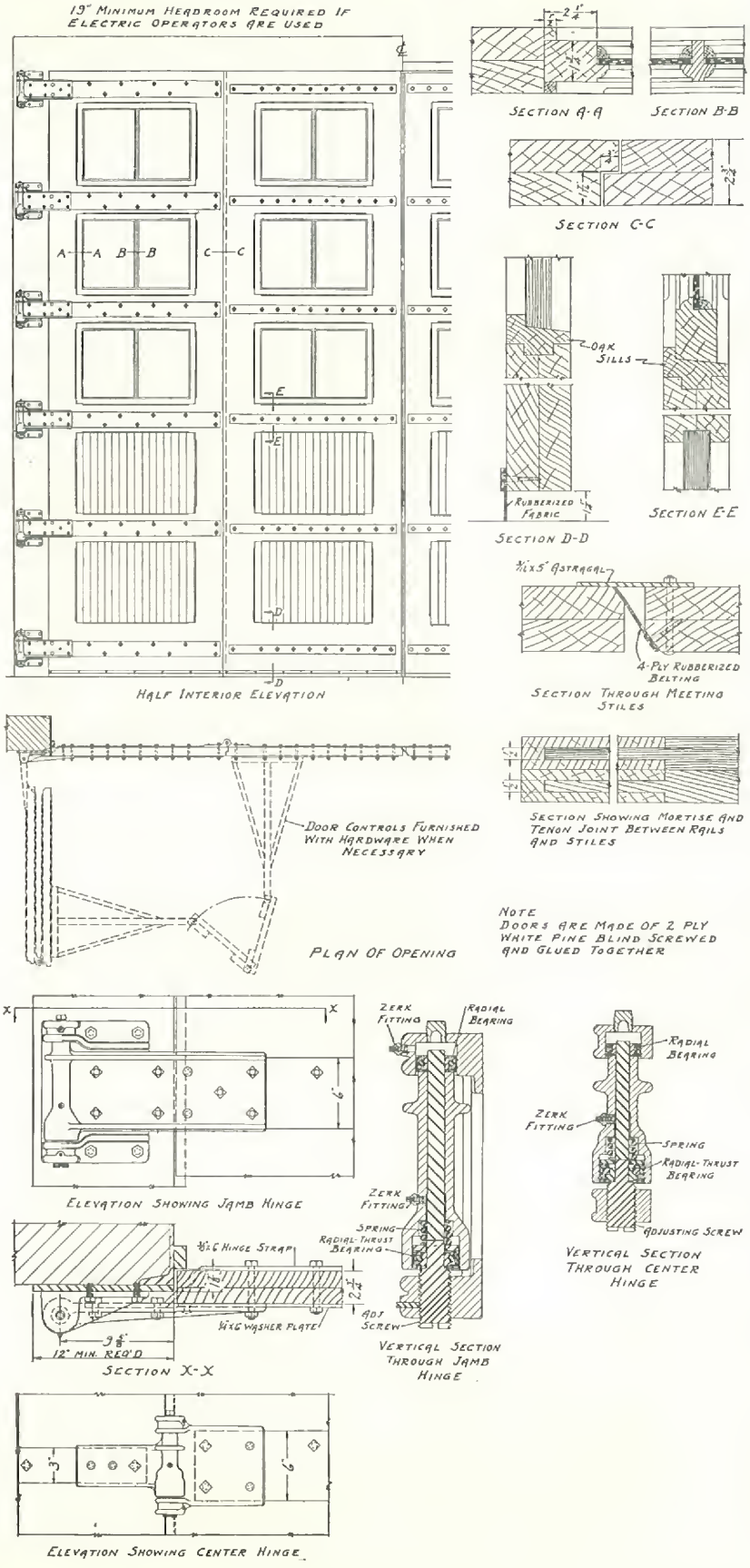
Swinging Doors Nos. 125, 325, 135, 335.

Lap Type—6 in. at each jamb plus 6 in. at one jamb for Automatic Closing device.

Flush Type—width of frame flange only. 6 3/4 in. required at one jamb for Automatic Closing device.

If conditions are not Standard consult Home Office or nearest Richmond Branch Office or Representative.

RICHMOND SWING-FOLD DOORS • • •



RICHMOND Swing-Fold Industrial Doors equipped with heavy malleable iron and steel, full ball bearing, weatherproof hinges and electric operators are ideal for closing large openings up to approximately 34x22 ft. for doors in pairs (4 sections) and 17x22 ft. for single doors (2 sections).

The doors are trussed to prevent warpage and distortion. The travel of the doors is governed by "wind balances" (door controls) and the operator arms and connections. Even the largest doors can be easily opened or closed by hand, when the operator is disconnected.

SPECIFICATIONS

(Heavy Doors and Hardware)

DOOR SECTIONS

Stiles and Rails—2¾ in. thick 2-Ply White Pine or Sitka Spruce glued and blind screwed together. Joints between members are double mortise and tenon. The bottom edges of panel and sash openings are lined with oak watersheds.

Panels—1⅛ in. thick tongue and groove, "V" grooved White Pine or Fir ceiling.

Sash—White Pine, moulded into openings, muntin bars machined from solid stock with loose glass mould to match.

Design—Any combination of panels and sashes may be furnished.

HARDWARE

Hinges—Are malleable iron and steel, full ball bearing, spring cushioned with vertical screw adjustment, grease gun lubricated and are weatherproof.

Jamb Hinges—The female leaf is attached to the jamb with four bolts or cap screws. To the male leaf are attached two 6-in. steel straps that extend across on each side of and are through bolted to the jamb door section.

Center Hinges—To the strap on the exterior side is attached the center hinge female leaf. To the male leaf is attached a 3-in. steel strap that extends across and is through bolted to the suspended door section, with a companion strap on the interior side of door.

Astragals—Rubberized fabric and 5-in. wide strap steel supplied for all doors in pairs (4 sections).

TRUSSES

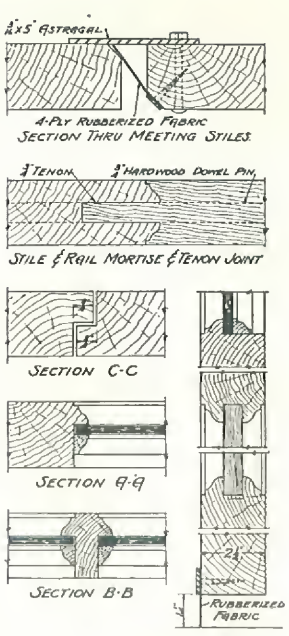
To prevent warpage and distortion of the jamb door section, I-Beam diagonal trusses are provided (not shown on cut) with such additional reinforcing as may be required. These are mounted upon the steel hinge straps to prevent the bolts drawing into the wood.

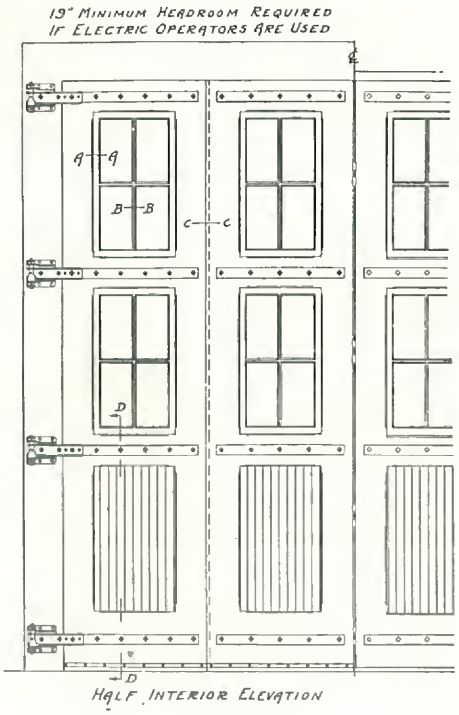
ELECTRIC OPERATORS

See pages 13 and 15.

• • • HARDWARE AND OPERATORS

RICHMOND Swing-Fold Medium Size Doors and hardware are suitable for openings up to 24x18-ft. doors in pairs (4 sections) and 12x18 ft. for single doors (2 sections). These doors may be manually operated satisfactorily but power operation is recommended. In the latter case the movement is governed by radius rods and the operator arms and connections. Wind balances similar to those supplied with heavy doors may be substituted for radius rods when specified.





SPECIFICATIONS

(Medium Doors and Hardware)

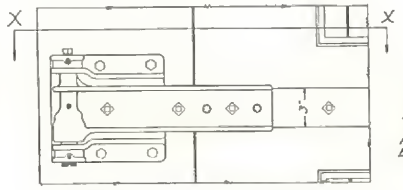
DOOR SECTIONS

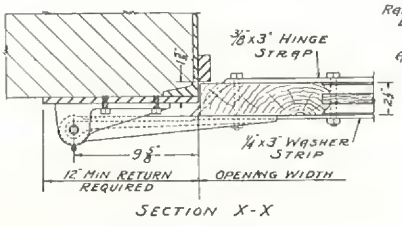
Stiles and Rails—2½-in. thick solid White Pine or Sitka Spruce machined with integral mouldings. Joints between members are mortise and tenon reinforced with hard wood dowels.

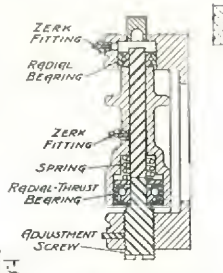
Panels—¾-in. thick tongue and groove—"V" grooved fir ceiling set in grooves in stiles and rails.

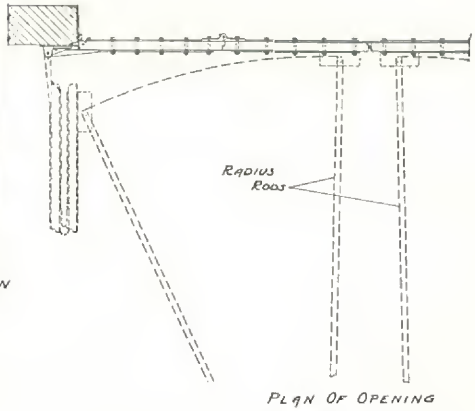
Sash—Glass openings formed by integral moulding in the stiles, rails, mullions, and muntin bars with loose glass stop mouldings to match.

Design—Any combination of panels and glass openings.









HARDWARE

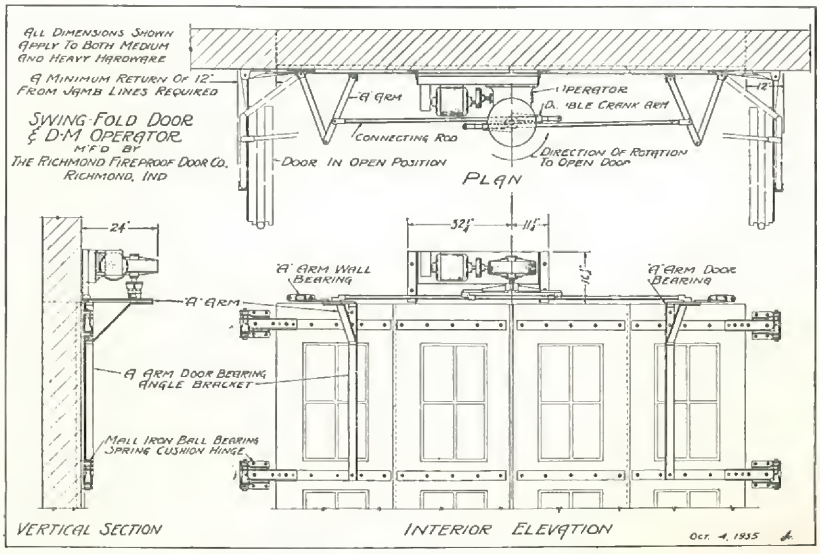
Hinges—Similar in all respects to heavy hardware (see opposite page), except that castings are smaller and steel straps are 3 in. instead of 6 in. in width. Application similar. When doors are to be manually operated, suitable chain and foot bolts and keepers are provided for locking door sections.

Trusses—Furnished on larger size doors in this class when required.

Astragals—Rubberized fabric and 5-in. wide strap steel supplied for all doors in pairs (4 sections).

ELECTRIC OPERATORS

See page 15 for description. Operators include all door arms, connecting arms, etc.



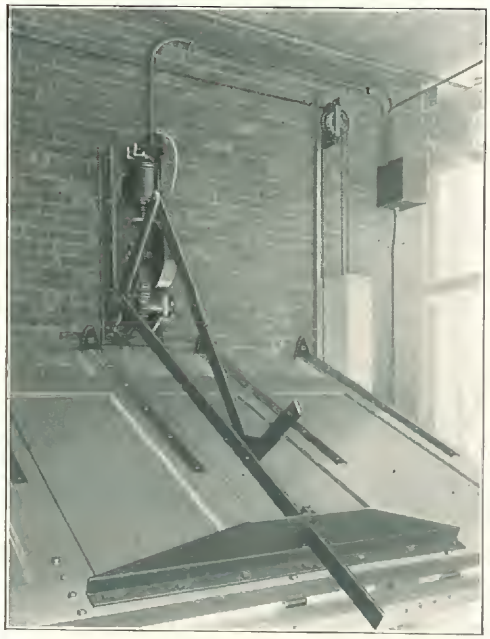
Clearance Diagram S-F Door and Operator

10
16

RICHMOND IMPROVED BI-FOLD DOOR AND OPERATOR

Three Bi-Fold Doors Equipped with "DM" Electric Operators

The two largest openings are 14 ft. wide, 17 ft. 6 in. high and the smaller opening 12 ft. wide, 14 ft. high. The larger doors open or close in 17 seconds and the smaller in 14 seconds



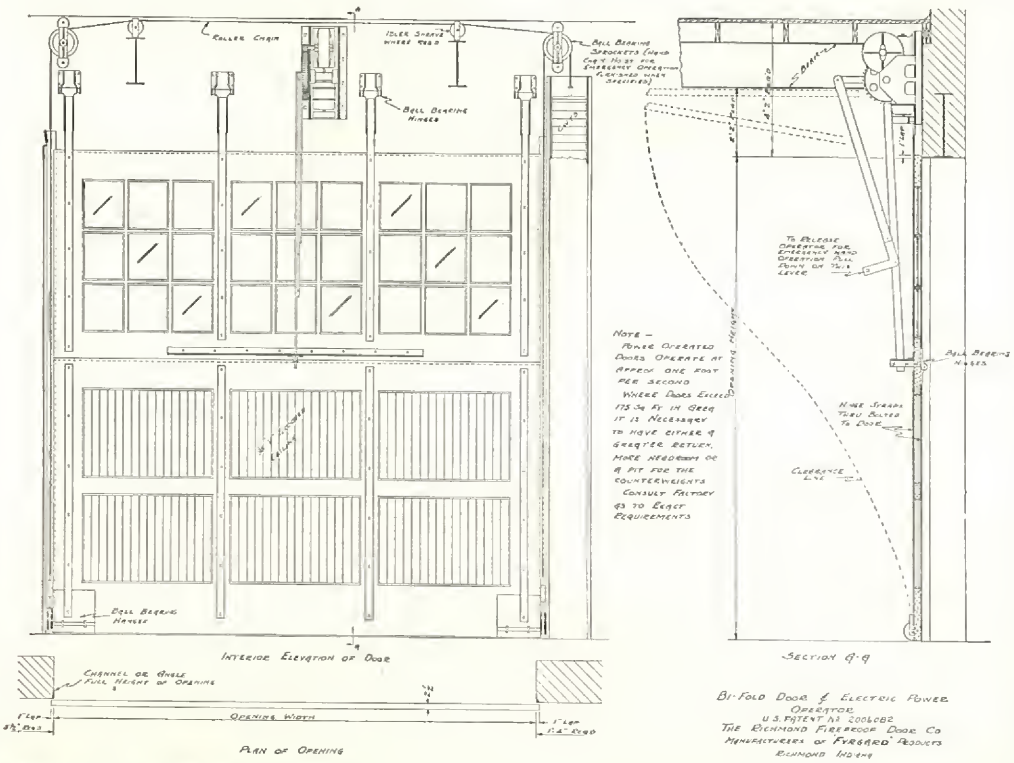
Close Up View of Bi-Fold Door and Door Arms

The middle arm is in two pieces with a ball and socket break joint to permit easy manual operation of door in case of power failure

BECAUSE of its simplicity and its massive, sturdy, two-section construction, Bi-Fold Industrial Doors have for many years been the favorite type for the closure of openings up to about 250 sq. ft., and they have successfully withstood the intense competition of the recently developed multi-section vertical sliding doors. However, not until Richmond improved the Bi-Fold Door, equipping it with full ball bearing hardware, roller chain and "DM" Electric Operator, did it really come into its own for openings up to 450 sq. ft.

By means of ball bearing hinges, rollers and sprockets, roller chain and correct alignment of moving parts, friction has been reduced to the minimum. When correctly counterbalanced even the largest door may be easily opened or closed by hand (in case of power failure) without a geared hoist.

Many attempts have been made to apply power operators to Bi-Fold doors, but Richmond has developed and patented the only successful positive and automatic method. The same movement of the operator arm that breaks the door from its closed position, if continued, also opens it to full height of opening. The reverse movement of the operator arm closes the door and holds it so tightly against the jambs that no additional catch or locking device is required.

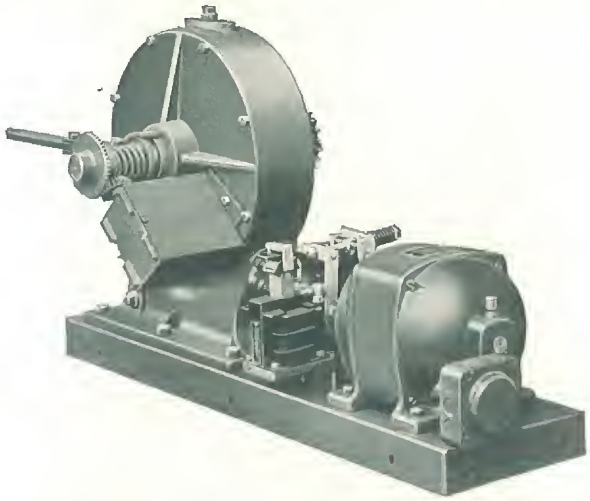


Many old installations of Bi-Fold Doors may be motorized by the Richmond "DM" Operator method with little or no changes in existing equipment, regardless of who manufactured them originally. If doors are large, they should be fitted with new ball bearing hardware.

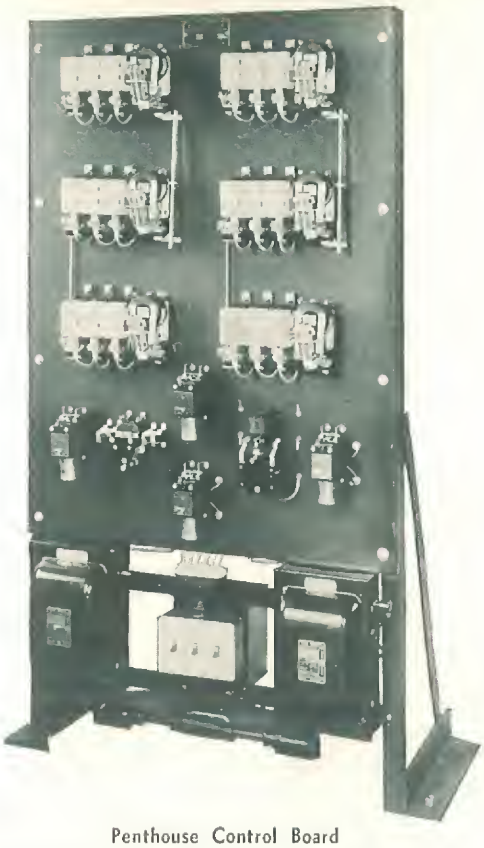
Consult your nearest Richmond Agency or write Home Office for further details.

RICHMOND TYPE "DM" ELECTRIC OPERATORS

An Operator For Every Purpose

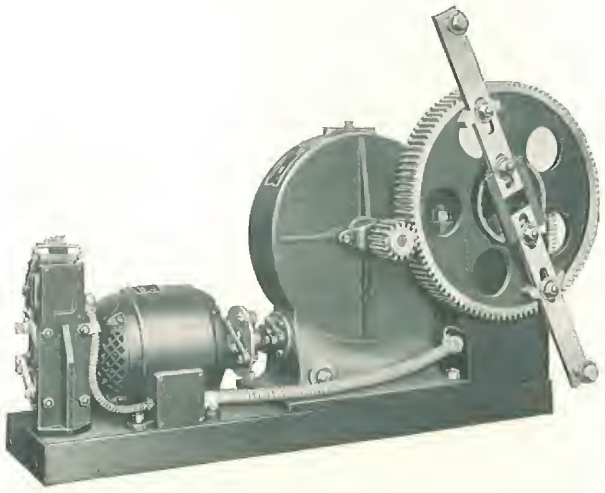


Medium Duty Operator with Clutch—Type "CC"
For vertical telescoping, vertical slide, slide, swing and counterbalanced doors



Penthouse Control Board
For counterbalanced elevator door master operator

RICHMOND "DM" Electric Operators are manufactured in several sizes and types. There are types for light, medium, and heavy duty. The light duty type is compact with motor, brake, and speed reducer assembled as an integral unit. The medium and heavy duty units are assembled, the motor, solanoid brake, speed reducer and spur gear (if used) being mounted on a heavy channel base. First grade standard motors and brakes are used. Flexible multi-disc fabric couplings connect the motor to the speed reducer. The speed reducer worm shaft runs in precision ball bearings. The worm gear shaft and spur gear shaft (when used) turn in heavy bronze bearings. The medium and heavy duty types may be mounted in any position, i.e., horizontal, vertical, or inverted. Adequate packing and stuffing boxes prevent leakage of oil from the worm gear case. Suitable positive easily adjusted limit switches are provided on all types as a part of the unit.



Heavy Duty Operator—Type "C-1"
For large swing-fold, Bi-Fold doors and other heavy equipment
Note: Operator without spur gear—Type "C"

Suitable control panel boards are supplied for every operator from the simplest up to the multiple type for master penthouse counterbalanced door operators. See illustration on this page.

In all applications of Richmond "DM" Operators (where conditions permit) the "Harmonic Motion" principle is employed, whereby the door is started slowly, travels fast, and comes to a slow stop, with no slamming as it closes.

Richmond "DM" Operators are easily installed and trouble free. They are controlled by the "two-button" method (unless otherwise specified) and may be started, stopped, or reversed at will. Any desired number of push button stations may be provided.

Richmond "DM" Operators with suitable accessories are adaptable for the operation of the following types of door equipment.

(1) Freight Elevator Counterbalanced Doors.

(2) Freight Elevator Hatchway and Car Gates.

(3) Passenger Elevator Doors (Single and Multiple slide and center parting).

(4) Industrial-Swing (single and pairs) Swing-Fold, Bi-Fold, Vertical Telescoping, Vertical Slide and Horizontal Slide (single and pairs) Doors.

(5) Subway Ventilation Dampers.

Richmond "DM" Operators will open or close large Swing-Fold Doors in 6 to 8 seconds and Bi-Fold Doors at the rate of 1 ft. per second.

If you have a power operated door problem, consult your nearest Richmond Agency or write Home Office.

PARTIAL LIST OF BRANCH OFFICES

Agents and Representatives

A. C. Weigerding, P. O. Box 173, Albuquerque, N. Mex.
Strope Steel Co., Terminal Street, Albany, N. Y.
E. P. Hoffman, 212 Red Rock Building, Atlanta, Ga.
Wm. E. Gambrill & Co., 213 East Street, Baltimore, Md.
Babcock, Hinds & Underwood, 174 Washington Street, Binghamton, N. Y.
The Richmond Fireproof Door Co., 66 Western Avenue, Boston, Mass.
Shults Engineering Company, Morgan Building, Buffalo, N. Y.
D. P. Barrett Co., 320 Brown Marx Building, Birmingham, Ala.
Currin-Andrews, 821 East 11th Street, Chattanooga, Tenn.
Richmond Fireproof Door Co., 100 North LaSalle Street, Chicago, Ill.
Richmond Fireproof Door Co., 607 Caxton Building, Cleveland, Ohio
Durbrow & Otte, 206 West Court Street, Cincinnati, Ohio
Alvan Tallmadge, 63 Parkwood Avenue, Columbus, Ohio
Walcott, Maisey & Paige, 1815 Coombs Street, Dallas, Tex.
Cement Products Co., 715 East River Street, Davenport, Iowa
Colorado Builders Supply Co., 1534 Blake Street, Denver, Colo.
Des Moines Stair Co., 611 Polk Building, Des Moines, Iowa
Richmond Fireproof Door Co., 2211 Woodward Avenue, Detroit, Mich.
C. C. Gaines, 903 Mills Building, El Paso, Tex.
Chas. F. Williams Co., 3320 West 7th Street, Fort Worth, Tex.
J. H. Jones, 215 Standard Building, Fort Wayne, Ind.
Haven-Busch, 501 Front Avenue, N. W., Grand Rapids, Mich.
J. D. Wilkins, P. O. Box 1288, Greensboro, N. C.
Atherton Bowen, P. O. Box 853, Harrisburg, Pa.
Walcott, Maisey & Paige, 2911 Dalton Street, Houston, Tex.
Stackhouse Building Specialty Co., 6117 College Avenue, Indianapolis, Ind.
Eustis A. Lancaster, John Sevier Hotel Building, Johnson City, Tenn.
E. C. Marqua Co., 617 Fairfax Building, Kansas City, Mo.
Equipment and Supply Co., 420 Baxter Avenue, Louisville, Ky.
Kenneth C. Gaines, 1046 South Olive, Los Angeles, Calif.
Pidgeon-Thomas Iron Works, P. O. Box 954, Memphis, Tenn.
Richmond Fireproof Door Co., 720 North Jefferson Street, Milwaukee, Wis.
John Williams Co., 1207 Warner Building, Nashville, Tenn.
Yunker Metal Products Co., 17 Cypress Street, Newark, N. J.
Nachary Builders Supply Co., 318 Carondelet Street, New Orleans, La.
Richmond Fireproof Door Co., 1 East 42nd Street, New York, N. Y.
Hans Dumelin, 295 Sherman Avenue, New Haven, Conn.
Richmond Fireproof Door Co., 1901 Architects Building, Philadelphia, Pa.
James R. Pitcairn, Century Building, Pittsburgh, Pa.
J. S. Archer, 511 Atlantic Life Building, Richmond, Va.
A. L. Horwitz, 208 Boxley Building, Roanoke, Va.
E. W. Maurer, 704 Temple Building, Rochester, N. Y.
Manufacturers Specialty Co., Exchange Building, Salt Lake City, Utah
John A. Williamson Co., 804 Avenue A, San Antonio, Tex.
San Diego Building Specialty Co., 629 West G Street, San Diego, Calif.
Persons-Dwan Co., 516 Call Building, San Francisco, Calif.
LaBar & Evans, 711 Linden Street, Scranton, Pa.
Tourtellotte-Bradley, 401 White Building, Seattle, Wash.
Lasar Manufacturing Co., 16th and O'Fallon Streets, St. Louis, Mo.
Otto F. Bridge, 504 Jackson Street, Sioux City, Iowa
Builders Agency, 732 West Washington Avenue, South Bend, Ind.
B. R. Johnson, 145 Harding Place, Syracuse, N. Y.
Builders Engineering Co., 2694 University Avenue, St. Paul, Minn.
Stovall & Archer, 805 Peninsular Telephone Building, Tampa, Fla.
S. L. Everitt, 422 Machen Street, Toledo, Ohio

THE RICHMOND FIREPROOF DOOR COMPANY

RICHMOND, INDIANA